JAPAN

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JIS B 6502 (1990) (English): Test methods for performance and accuracy of wood planers

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The citizens of a nation must honor the laws of the land.

Fukuzawa Yukichi

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JIS

JAPANESE INDUSTRIAL STANDARD

Test methods for performance and accuracy of wood planers

JIS B 6502—1990

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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JAPANESE INDUSTRIAL STANDARD J I S

Test methods for performance and accuracy of wood planers B 6502-1990

1. Scope

This Japanese Industrial Standard specifies the test methods related to functions, running performances and rigidities and the inspecting methods on accuracies and working accuracies of the wood planers given in Table 1 and rectangular two-side wood planers (hereinafter referred to as the "planers") among the planers of 100 mm or over to 900 mm or under in cutterblock length specified in JIS B 0114.

Table 1. Planers

Name of machine
Hand feed planer
Levelling planer
Levelling and thicknessing planer
Levelling and moulding planer
Single-surface planer
Double-surface planer
Three-side planing and moulding machine
Four-side planing and moulding machine

Remarks 1. The rectangular two-side planer means the planer which cuts and dresses adjacent two sides rectangularly.

2. The applicable Standards to this Standard are as given in the following.

JIS B 0114- Glossary of Terms for Wood Working Machinery

JIS B 0905- Balance Quality Requirements of Rigid Rotors

JIS B 6507- General Code of Safety for Wood Working Machinery

JIS B 6521- Methods of Measurement for Noise Emitted by Wood Working Machinery

JIS B 6601- Safety Standards for Construction of Single Surface Planers

3. The equivalent International Standards to this Standard are as given in the following.

ISO 7568 Woodworking machines – Thickness planing machines with rotary cutterblock for one-side dressing – Nomenclature and acceptance conditions

ISO 7569 Woodworking machines – Planing machines for two-, three-, or four-side dressing – Nomenclature and acceptance conditions

ISO 7570 Woodworking machines – Surface planing and thicknessing machines – Nomenclature and acceptance conditions

ISO 7571 Woodworking machines – Surface planing machines with cutterblock for one-side dressing – Nomenclature and acceptance conditions

4. The units and numerical values given in { } in this Standard are based on the traditional unit system and are appended for informative reference.

Reference Standards:

JIS B 6501- Test Code for Performance and Accuracy of Wood Working Machinery

JIS B 7737- Balancing Machines

JIS Z 8203- SI Units and the Use of their Multiples and of Certain other Units

Table 3. Record Form 1

No.	Time of measurement O'clock minute	Name of cutterblock	Speeds of rotation of main spindle min^{-1} {rpm}		Temperatures ℃			Required electric power			Noise dB (A)	Description
					Main spindle bearings		Room temperature	Voltage V	Current A	Input kW		
			Marked	Actually measured	Left (Upper)	Right (Lower)						
		Upper horizontal cutterblock										
		Lower horizontal cutterblock										
		Left vertical cutterblock										
		Right vertical cutterblock										

Remarks 1. For a planer equipped with the variable speed device of main spindle speed of rotation, record the speeds of rotation of at least two levels including the maximum speed of rotation.

2. As regards the measuring conditions of noise, record these in the description column.

3. As regards the other measurements than noise, carry out separately on all of the cutterblocks.

4. The name of cutterblock may be altered according to type of machine.

3.2 Load Running Test Carry out the cutting of a specimen, measure required electric power and noise, and, together with the recording of respective items specified in the Record Form 2 of Table 4, observe that no abnormal vibration has occurred and the condition of cut surfaces by the sense of touch.

In the measurement of required electric power, carry out testing either at a definite feed speed, by changing the thickness of the specimen, or at a definite thickness of the specimen, by changing the feed speed.

Table 4. Record Form 2

No.	Specimen					Tool						Cutting conditions					Required electric power					Noise	Description
	Dimensions			Species of tree or type of wood	Moisture content	Name of cutterblock	Length	Width	Thickness	Shape of tooth	Material of cutting edge	Speed of rotation of main spindle	Cutting speed	Feed speed	Depth of cut	Width of cut	Voltage	Current	Input		Cutting power		
	Length mm	Width mm	Thickness mm		%		mm	mm	mm			min^{-1} {rpm}	m/min	m/min	mm	mm	V	A	No-load P_0 kW	Load P_1 kW	$P_1 - P_0$ kW	dB (A)	
						Upper horizontal cutterblock				Attached otherwise													
						Lower horizontal cutterblock																	
						Left vertical cutterblock																	
						Right vertical cutterblock																	

Remarks 1. As regards the cutting direction of specimen and measuring conditions of noise, record these in the description column.

2. As regards the shape of tooth, illustrate it and enter the main dimensions.

3. As regards the other measurements than noise, carry out separately on all of the cutterblocks.

4. The name of cutterblock may be altered according to type of machine.

5. Inspecting Methods on Accuracies

5.1 Inspection on Static Accuracies The inspection on static accuracies of planers shall be in accordance with Table 6.

Table 6. Inspection on Static Accuracies

Unit: mm

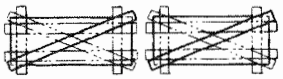
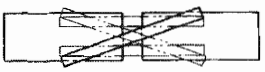
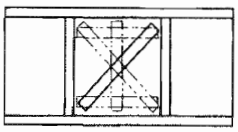
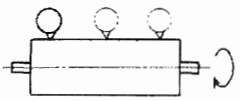
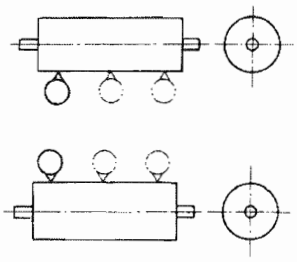
No.	Inspection item		Measuring method	Diagram for measuring method	Permissible values	
					Levelling system(4)	Automatic planing system(5)
1	Straightness of upper face of table	Front table and rear table	Place a straightedge on the upper face of table diagonally, longitudinally and laterally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.10 per 1000	0.05 per 500
		Front and rear tables	Place a straightedge on the upper faces of front table and rear table straddling over diagonally and longitudinary, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.10 per 1000	0.05 per 500
		Main table	Place a straightedge on the upper face of main table diagonally, longitudinally and laterally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.05 per 500	0.05 per 500
2	Runout of horizontal circular cutterblock		Apply a test indicator to the centre and both ends of the cutterblock, rotate the cutterblock manually, and consider the maximum difference of the readings of the test indicator during rotation as the measured value.		0.03	0.03
3	Parallelism of horizontal cutterblocks to upper face of table	Circular cutterblock	Place a test indicator on the upper face of the reference table(7), and consider the maximum difference of the readings of the test indicator at the centre and both ends of the lowermost part for the upper cutterblock and of the uppermost part for the lower cutterblock to be the measured value(8).		0.05	0.05

Table 6 (Continued)

Unit: mm

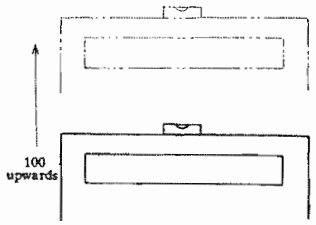
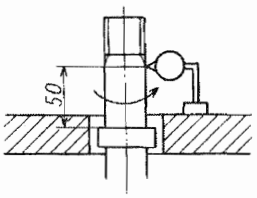
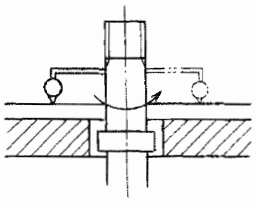
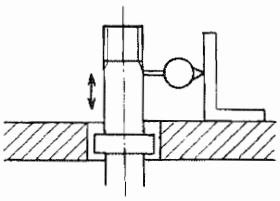
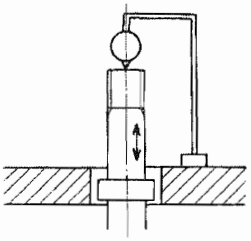
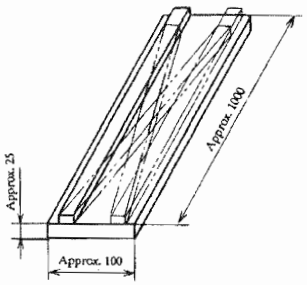
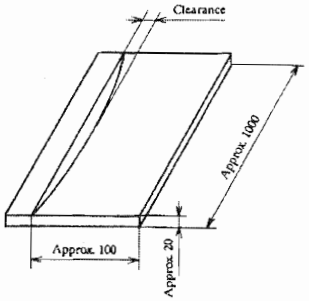
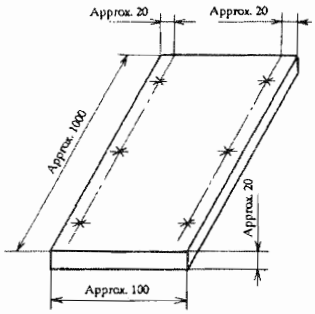
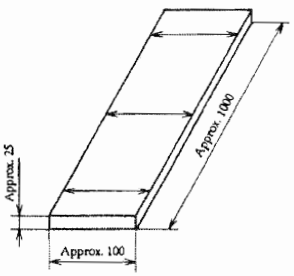
No.	Inspection item	Measuring method	Diagram for measuring method	Permissible values	
				Levelling system(4)	Automatic planing system(5)
7	Parallelism of upwards and downwards motions of upper horizontal cutterblock	Place a precision level on the supporting frame of upper horizontal cutterblock in parallel to the horizontal cutterblock, allow it to lift approx. 100 mm from the lowered position, and consider the maximum difference of readings of the precision level during this movement as the measured value.		0.10/m	0.10/m
8	Runout of vertical spindle	Apply a test indicator to the position of 50 mm from the flange face of the vertical spindle, rotate the main spindle manually, and consider the maximum difference of readings of the test indicator during rotation as the measured value.		0.03	0.03
9	Perpendicularity of centre line of main spindle to upper face of table	Place a straightedge on the upper face of table of vertical spindle or upper face of main table, apply a test indicator fixed to the vertical spindle and swivel, and consider the maximum difference of readings of the test indicator as the measured value.		0.10 per 200 of swivel diameter	0.10 per 200 of swivel diameter
10	Perpendicularity of upwards and downwards motion of vertical spindle to upper face of table	Apply a test indicator fixed to the vertical spindle to a square which has been placed stationarily(10) on the upper face of table of vertical spindle or upper face of main table, allow the main spindle to travel to its maximum travelling amount, and consider the maximum difference of readings of the test indicator as the measured value.		0.05	0.05
11	Axial runout of vertical spindle	Apply a test indicator to the upper end face of the vertical spindle, shake the vertical spindle in axial direction(11), and consider the maximum difference of the readings of the test indicator as the measured value.		0.05	0.05

Table 8. Working Accuracy Inspection

Unit: mm

No.	Inspection item	Measuring method	Diagram for measuring method	Permissible values	
				Levelling system(4)	Automatic planing system(5)
1	Straightness of flat (13)	After the flat of a specimen has been cut and dressed, apply a 1000-mm straightedge to its cut and dressed face in diagonally and longitudinally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value.		0.10 per hand feed of 1000 0.30 per automatic feed of 1000	–
2	Straightness of edge (14)	After the flat of a specimen has been cut and dressed, apply a 1000-mm straightedge to its cut and dressed face, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value.		0.05 per hand feed of 1000 0.15 per automatic feed of 1000	–
3	Accuracy on thickness	Cut and dress the surfaces and back faces of 2 specimens at the same time with both cutterblock heads, measure the thicknesses at 6 places on peripheries of respective specimens as given in diagram using a micrometer for external measurement, obtain the maximum differences respectively, and consider the maximum value thereof as the measured value.		0.10 for automatic feed	0.10
4	Accuracy on width	Cut and dress both edges of 3 sheets of specimens continuously, measure the widths at centre and both ends of the second sheet of specimen with vernier calipers, and consider the maximum difference as the measured value.		0.10 for automatic feed	0.10

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1. Scope

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Table 1. Planers

Name of machine
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Levelling planer
Levelling and thicknessing planer
Levelling and moulding planer
Single-surface planer
Double-surface planer
Three-side planing and moulding machine
Four-side planing and moulding machine

Remarks 1. The rectangular two-side planer means the planer which cuts and dresses adjacent two sides rectangularly.

2. The applicable Standards to this Standard are as given in the following.

JIS B 0114- Glossary of Terms for Wood Working Machinery

JIS B 0905- Balance Quality Requirements of Rigid Rotors

JIS B 6507- General Code of Safety for Wood Working Machinery

JIS B 6521- Methods of Measurement for Noise Emitted by Wood Working Machinery

JIS B 6601- Safety Standards for Construction of Single Surface Planers

3. The equivalent International Standards to this Standard are as given in the following.

ISO 7568 Woodworking machines – Thickness planing machines with rotary cutterblock for one-side dressing – Nomenclature and acceptance conditions

ISO 7569 Woodworking machines – Planing machines for two-, three-, or four-side dressing – Nomenclature and acceptance conditions

ISO 7570 Woodworking machines – Surface planing and thicknessing machines – Nomenclature and acceptance conditions

ISO 7571 Woodworking machines – Surface planing machines with cutterblock for one-side dressing – Nomenclature and acceptance conditions

4. The units and numerical values given in { } in this Standard are based on the traditional unit system and are appended for informative reference.

Reference Standards:

JIS B 6501- Test Code for Performance and Accuracy of Wood Working Machinery

JIS B 7737- Balancing Machines

JIS Z 8203- SI Units and the Use of their Multiples and of Certain other Units

2. Methods for Functional Tests

The functional tests for planers shall be in accordance with Table 2.

Table 2. Functional Tests

No.	Test item	Test method
1	Electric equipment	Before and after a running test, examine the insulating condition once each.
2	Start, stop and running operation of main spindle	At an appropriate main spindle speed of rotation, repeat 10 times of start and stop to examine.
3	Changing operation of main-spindle speed of rotation	Change the main spindle speed of rotation on overall speeds of rotation in the marking to examine the smoothness of actions and reliability of indications of the operating device.
4	Start, stop and running operation of feed system of workpiece	At an appropriate feed speed, repeat 10 times of start and stop to examine the smoothness and reliability of actions.
5	Changing operation of feed speed	Change the speed on overall feed speeds in the marking and, for that of a no step variable speed type, on the 3 feed speeds of the minimum, intermediate and maximum to examine the smoothness of actions and the reliability of indications of the operating equipment.
6	Manual feed operation	Examine the smoothness and uniformity of actions throughout the overall length of the motion by the manual feed handle, and examine the smoothness and uniformity rotating the sensitive feed handle several times.
7	Operations of lifting, lowering and clamping of main spindle and operation of automatic stopping	Allow the main spindle to lift and lower to examine the smoothness and uniformity throughout the overall length of motion, and examine the reliability of clamping at the centre and both ends of the motion and the smoothness of the action of the clamping device. Furthermore, at the both ends of the motion, examine the smoothness and reliability of the actions of the automatic stopping device.
8	Lifting, lowering and clamping operations of table	Examine the smoothness and uniformity of actions throughout the overall length of motion, by lifting and lowering the table. Furthermore, at the centre and both ends of motion, examine the smoothness of the actions and reliability of clamping of the clamping device.
9	Actional operation of movable part	In respect to the movable range of the motion, examine the smoothness and reliability of its action.
10	Attaching and detaching of tool	Examine the smoothness and reliability of fastening screw and the attaching and detaching of tool.
11	Safety device	Examine the reliability of safety function for operators and protecting function for machine (see JIS B 6507 and JIS B 6601).
12	Lubricating equipment	Examine the reliability of functions, such as oiltightness and reasonable distribution of oil quantity.
13	Oil hydraulic pressure equipment	Examine the reliability of functions, such as oiltightness and pressure regulation.
14	Pneumatic pressure equipment	Examine the reliability of functions, such as airtightness and pressure regulation.
15	Accessories	Examine the reliability of functions.

Remarks: For a planer which is not provided with the said function, the corresponding test item to this in Table 2 shall be omitted.

3. Methods for Running Tests

3.1 No-load Running Test Allow the main spindle to rotate, continue to run for 30 to 60 minutes, and, after the bearing temperature has stabilized, measure the required electric power and noise. Together with the recording of respective items specified in the Record Form 1 of Table 3, observe that no abnormal vibration has occurred by the sense of touch.

Furthermore, the measurement of noise shall be in accordance with JIS B 6521.

Table 3. Record Form 1

No.	Time of measurement O'clock minute	Name of cutterblock	Speeds of rotation of main spindle min^{-1} {rpm}		Temperatures ℃			Required electric power			Noise dB (A)	Description
					Main spindle bearings		Room temperature	Voltage V	Current A	Input kW		
			Marked	Actually measured	Left (Upper)	Right (Lower)						
		Upper horizontal cutterblock										
		Lower horizontal cutterblock										
		Left vertical cutterblock										
		Right vertical cutterblock										

Remarks 1. For a planer equipped with the variable speed device of main spindle speed of rotation, record the speeds of rotation of at least two levels including the maximum speed of rotation.

2. As regards the measuring conditions of noise, record these in the description column.

3. As regards the other measurements than noise, carry out separately on all of the cutterblocks.

4. The name of cutterblock may be altered according to type of machine.

3.2 Load Running Test Carry out the cutting of a specimen, measure required electric power and noise, and, together with the recording of respective items specified in the Record Form 2 of Table 4, observe that no abnormal vibration has occurred and the condition of cut surfaces by the sense of touch.

In the measurement of required electric power, carry out testing either at a definite feed speed, by changing the thickness of the specimen, or at a definite thickness of the specimen, by changing the feed speed.

Table 4. Record Form 2

No.	Specimen					Tool						Cutting conditions					Required electric power					Noise dB (A)	Description
	Dimensions			Species of tree or type of wood	Moisture content %	Name of cutterblock	Length mm	Width mm	Thickness mm	Shape of tooth	Material of cutting edge	Speed of rotation of main spindle min^{-1} {rpm}	Cutting speed m/min	Feed speed m/min	Depth of cut mm	Width of cut mm	Voltage V	Current A	Input				
	Length mm	Width mm	Thickness mm																No-load P_0 kW	Load P_1 kW	Cutting power P_1-P_0 kW		
						Upper horizontal cutterblock				Attached otherwise													
						Lower horizontal cutterblock																	
						Left vertical cutterblock																	
						Right vertical cutterblock																	

Remarks 1. As regards the cutting direction of specimen and measuring conditions of noise, record these in the description column.

2. As regards the shape of tooth, illustrate it and enter the main dimensions.

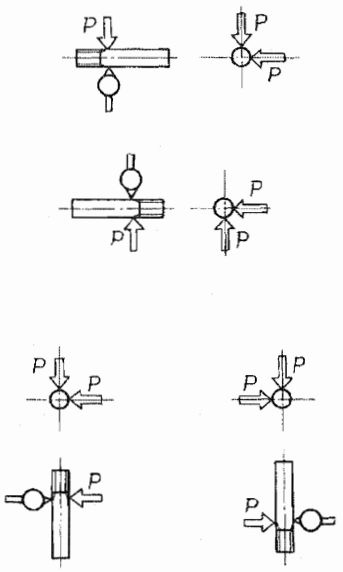
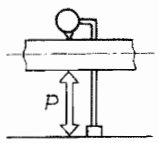
3. As regards the other measurements than noise, carry out separately on all of the cutterblocks.

4. The name of cutterblock may be altered according to type of machine.

4. Rigidity Test Method

The rigidity test of planer shall be in accordance with Table 5.

Table 5. Rigidity Test

No.	Test item	Measuring method	Diagram for measuring method
1	Bending rigidity of main spindle system	Apply a fixed test indicator to the tip end part (side face) of the main spindle, apply the load (P) in rectangular direction to the main spindle([1]), and measure the deflection of the main spindle. Carry out this measurement applying the load in two directions which are at 90° each other([2]).	
2	Resultant rigidity of cutterblock and table	Apply a test indicator fixed on the upper surface of the table to the cutterblock, apply the load (P) of vertical direction between the cutterblock and the upper surface of table([3]), and measure the relative displacement between the cutterblock and the upper surface of table.	

Notes ([1]) The position to which the load is applied shall be that position as near as possible to the main spindle end, and its distance from the main spindle end shall be recorded.

([2]) As regards that planer of which main spindle or main spindle sleeve is allowed to lift or lower, measurements shall be carried out by fixing at the centre of its movement.

([3]) The position to which the load is applied shall be at the centre of the cutterblock as far as possible, and its distance from the main spindle end shall be recorded.

Remarks 1. The rigidity tests on the machines of the same design shall be represented by the test results carried out on a representative set, and on others may be omitted.

2. The load (P) shall be that of which magnitude is recommended by the manufacturer, and its value shall be recorded.

3. These measurements shall be carried out after the bearing temperature has been stabilized, when the main spindle is allowed to rotate.

5. Inspecting Methods on Accuracies

5.1 Inspection on Static Accuracies The inspection on static accuracies of planers shall be in accordance with Table 6.

Table 6. Inspection on Static Accuracies

Unit: mm

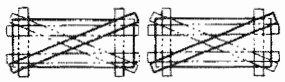
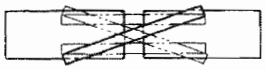
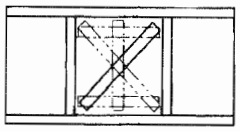
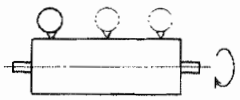
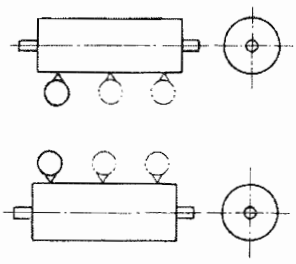
No.	Inspection item		Measuring method	Diagram for measuring method	Permissible values	
					Levelling system(4)	Automatic planing system(5)
1	Straightness of upper face of table	Front table and rear table	Place a straightedge on the upper face of table diagonally, longitudinally and laterally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.10 per 1000	0.05 per 500
		Front and rear tables	Place a straightedge on the upper faces of front table and rear table straddling over diagonally and longitudinary, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.10 per 1000	0.05 per 500
		Main table	Place a straightedge on the upper face of main table diagonally, longitudinally and laterally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value(6).		0.05 per 500	0.05 per 500
2	Runout of horizontal circular cutterblock		Apply a test indicator to the centre and both ends of the cutterblock, rotate the cutterblock manually, and consider the maximum difference of the readings of the test indicator during rotation as the measured value.		0.03	0.03
3	Parallelism of horizontal cutterblocks to upper face of table	Circular cutterblock	Place a test indicator on the upper face of the reference table(7), and consider the maximum difference of the readings of the test indicator at the centre and both ends of the lowermost part for the upper cutterblock and of the uppermost part for the lower cutterblock to be the measured value(8).		0.05	0.05

Table 6 (Continued)

Unit: mm

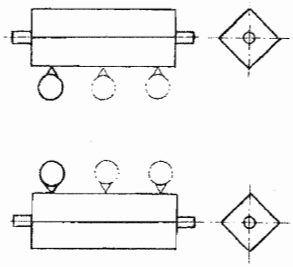
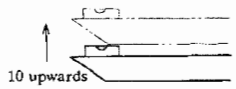
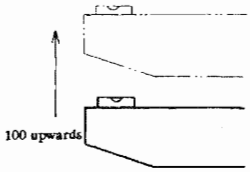
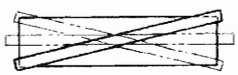
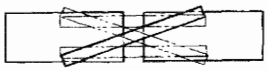
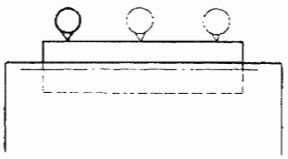
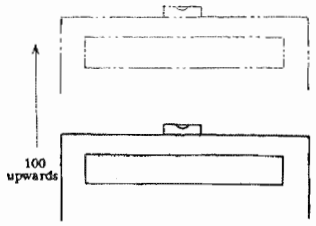
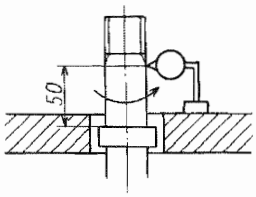
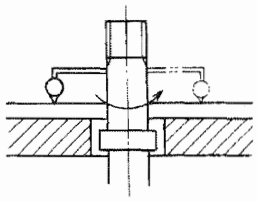
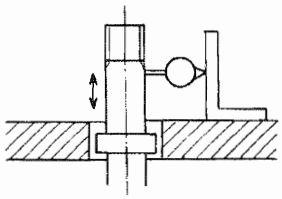
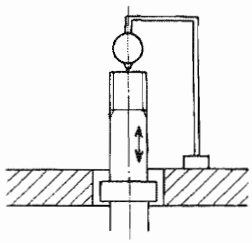
No.	Inspection item		Measuring method	Diagram for measuring method	Permissible values	
					Levelling system(4)	Automatic planing system(5)
3	Parallelism of horizontal cutterblocks to upper face of table	Square cutterblock	Place a test indicator on the upper face of the reference table(7), and consider the maximum difference of the readings of the test indicator at the centre and both ends of the tip end of back cutting tooth of the lowermost part for the upper cutterblock and of the uppermost part for the lower cutterblock as the measured value(9).		0.10	0.10
4	Parallelism in upwards and downwards motions of table	Front table	Place a precision level on the upper face of the front table in parallel to and at right angles with the cutterblock, allow it to lift approx. 10 mm from the lowered position, and consider the maximum difference of readings of the precision level during this movement as the measured value.		0.06/m	0.10/m
		Reference table	Place a precision table on the upper face of the reference table(7) in parallel to the cutterblock, allow it to lift approx. 100 mm from the lowered position, and consider the maximum difference of readings of the precision level during this movement as the measured value.		–	0.10/m
5	Straightness of ruler face	Front ruler and rear ruler	Place a straightedge on the ruler face on diagonal lines and in parallel to the table face, measure clearances with a feeler gauge, and consider the maximum value as the measured value.		0.10 per 1000	0.10 per 1000
		Front and rear rulers	Place a straightedge straddling over the ruler face on diagonal lines and in parallel to the table face, measure clearances with a feeler gauge, and consider the maximum value as the measured value.		0.10 per 1000	–
6	Runout of table roller		Apply a test indicator to the centre and both ends of the table roller, rotate the table roller manually, and consider the readings of the test indicator during rotation as the measured value.		0.08	0.08

Table 6 (Continued)

Unit: mm

No.	Inspection item	Measuring method	Diagram for measuring method	Permissible values	
				Levelling system(4)	Automatic planing system(5)
7	Parallelism of upwards and downwards motions of upper horizontal cutterblock	Place a precision level on the supporting frame of upper horizontal cutterblock in parallel to the horizontal cutterblock, allow it to lift approx. 100 mm from the lowered position, and consider the maximum difference of readings of the precision level during this movement as the measured value.		0.10/m	0.10/m
8	Runout of vertical spindle	Apply a test indicator to the position of 50 mm from the flange face of the vertical spindle, rotate the main spindle manually, and consider the maximum difference of readings of the test indicator during rotation as the measured value.		0.03	0.03
9	Perpendicularity of centre line of main spindle to upper face of table	Place a straightedge on the upper face of table of vertical spindle or upper face of main table, apply a test indicator fixed to the vertical spindle and swivel, and consider the maximum difference of readings of the test indicator as the measured value.		0.10 per 200 of swivel diameter	0.10 per 200 of swivel diameter
10	Perpendicularity of upwards and downwards motion of vertical spindle to upper face of table	Apply a test indicator fixed to the vertical spindle to a square which has been placed stationarily(10) on the upper face of table of vertical spindle or upper face of main table, allow the main spindle to travel to its maximum travelling amount, and consider the maximum difference of readings of the test indicator as the measured value.		0.05	0.05
11	Axial runout of vertical spindle	Apply a test indicator to the upper end face of the vertical spindle, shake the vertical spindle in axial direction(11), and consider the maximum difference of the readings of the test indicator as the measured value.		0.05	0.05

Notes ([4]) That planer having hand feed function and levelling function among the hand feed planer, levelling planer, levelling and thicknessing planer, levelling, and moulding planer and rectangular two-side planer.

([5]) That planer having functions of the automatic planer among the single-surface planer, double-surface planer, three-side planing and moulding machine, four-side planing and moulding machine and rectangular two-side planer.

([6]) In the case where the measuring distance is smaller than the reference, the numerical value for the permissible value of measurement shall be converted in proportion to the distance. Unless otherwise specified, in the case where the numerical value of converted permissible value is less than 0.005 mm, 0.005 mm shall be taken.

([7]) For a planer having an upper cutterblock it means the main table, and in the case where the main table is not separated, it means a surface plate as a whole.

([8]) This measurement shall be carried out on the overall length of the lateral cutterblock taking the position of the least runout as the reference.

([9]) This measurement shall be carried out on each tip end of back cutting tooth.

([10]) The positions where this is to be fixed shall be the two places which are at right angles with each other.

([11]) The force applied to shake in axial direction shall be approximately 150 N {15 kgf}.

Remarks: For a planer having the said function, the equivalent inspection item to this in Table 6 shall be omitted.

5.2 Dynamic Accuracy Inspection The dynamic accuracy inspection of planers shall be in accordance with Table 7.

Table 7. Dynamic Accuracy Inspection

Unit: mm/s

No.	Inspection item	Measuring method	Permissible values	
			Levelling system([4])	Automatic planing system([5])
1	Balance quality of cutterblock	Measure the magnitude of unbalance with a balancing test machine, obtain the magnitude of specific unbalance from the mass of the cutterblock, and calculate the balance quality from speed of rotation([12]). Balance quality = $\frac{en}{9.55}$ where, e : magnitude of specific unbalance (mm) n : speed of rotation (min^{-1} {rpm})	6.3	6.3

Note ([12]) Two-side balancing shall be taken (see JIS B 0905).

Informative Reference: The permissible value of No. 1 shall be the grade G 6.3 of the balance quality as given in JIS B 0905.

6. Methods for Working Accuracy Inspection

The working accuracy inspection of the planers shall be in accordance with Table 8.

Table 8. Working Accuracy Inspection

Unit: mm

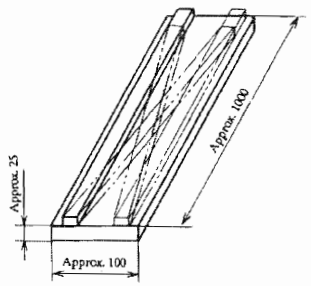
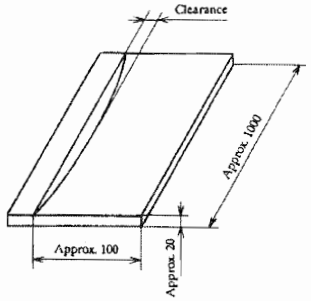
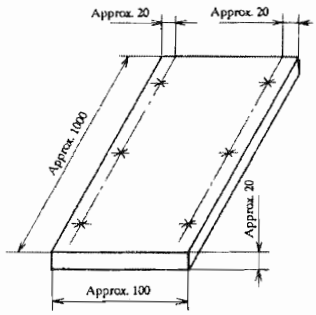
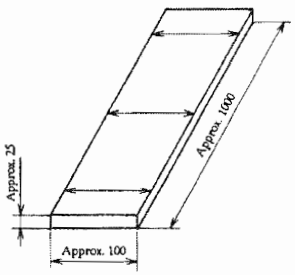
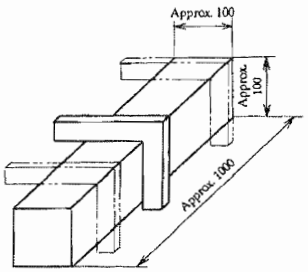
No.	Inspection item	Measuring method	Diagram for measuring method	Permissible values	
				Levelling system(4)	Automatic planing system(5)
1	Straightness of flat (13)	After the flat of a specimen has been cut and dressed, apply a 1000-mm straightedge to its cut and dressed face in diagonally and longitudinally, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value.		0.10 per hand feed of 1000 0.30 per automatic feed of 1000	–
2	Straightness of edge (14)	After the flat of a specimen has been cut and dressed, apply a 1000-mm straightedge to its cut and dressed face, measure clearances with a feeler gauge, and consider the maximum value thereof as the measured value.		0.05 per hand feed of 1000 0.15 per automatic feed of 1000	–
3	Accuracy on thickness	Cut and dress the surfaces and back faces of 2 specimens at the same time with both cutterblock heads, measure the thicknesses at 6 places on peripheries of respective specimens as given in diagram using a micrometer for external measurement, obtain the maximum differences respectively, and consider the maximum value thereof as the measured value.		0.10 for automatic feed	0.10
4	Accuracy on width	Cut and dress both edges of 3 sheets of specimens continuously, measure the widths at centre and both ends of the second sheet of specimen with vernier calipers, and consider the maximum difference as the measured value.		0.10 for automatic feed	0.10

Table 8 (Continued)

Unit: mm

No.	Inspection item	Measuring method	Diagram for measuring method	Permissible values	
				Levelling system([4])	Automatic planing system([5])
5	Squareness of cut and dressed faces	Cut and dress the two faces, intersecting at right angles, of three specimens continuously, apply a square to the cut and dressed faces of the 2nd piece, and measure clearances with a feeler gauge. Carry out this measurement at 3 places of the centre and both ends of the specimen, and consider the maximum value as the measured value.		0.10 per hand feed of 100 0.10 per automatic feed of 100	0.10

Notes ([13]) Wider timber face in width.

([14]) Narrower timber face in width.

Remarks 1. The specimen shall be subjected to necessary preprocessing in advance.

2. For a planer which is not provided with the said function, the equivalent inspection item to this in Table 8 shall be omitted.

3. For that of not requiring continuous cutting of 3 sheets, it shall be carried out on the minimum number of sheets.

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